

AMENDMENTS TO THE CLAIMS

The text of all pending claims, (including withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (canceled), (withdrawn), (new), (previously presented), or (not entered).

Please ADD new claim 20. Please AMEND claim 19 to read as follows:

1. (previously presented) A motor controller for performing control of position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, wherein said motor controller includes means for automatically A/D converting, determining and displaying information on at least one of amplitudes, offsets and a phase difference of the analog feedback signals on a digital display section of the motor controller or a host controller connected with the motor controller.
2. (original) A motor controller according to claim 1, wherein the display section of the motor controller includes a LED display device.
3. (previously presented)) A motor controller according to claim 1, wherein the display section of the motor controller includes a seven-segment display device.
4. (original) A motor controller according to claim 1, wherein the display section of the motor controller includes a display device connected with the motor controller.
5. (original) A motor controller according to claim 1, wherein the information on at least one of the amplitudes, the offsets and the phase difference is obtained based on A/D conversion values of the analog feedback signals.
6. (original) A motor controller according to claim 1, further including means for calculating at least one of the offsets, the amplitudes and the phase difference of the analog feedback signals of two different phases.

7. (previously presented) A motor controller for performing control of position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, wherein said motor controller includes means for automatically A/D converting, determining and displaying results of comparison of amplitudes and/or offsets of the analog feedback signals with respective predetermined values on a digital display section of the motor controller or a host controller connected with the motor controller.

8. (original) A motor controller according to claim 7, wherein the display section of the motor controller includes a LED display device.

9. (previously presented)) A motor controller according to claim 7, wherein the display section of the motor controller includes a seven-segment display device.

10. (original) A motor controller according to claim 7, wherein the display section of the motor controller includes a display device connected with the motor controller.

11. (original) A motor controller according to claim 7, wherein the amplitudes and/or the offsets are obtained based on A/D conversion values of the analog feedback signals.

12. (original) A motor controller according to claim 7, further including means for calculating the offsets and/or the amplitudes of the analog feedback signals of two different phases.

13. (original) A motor controller for performing control of position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, said motor controller comprising:

- a converter converting the analog feedback signals into digital feedback signals;
- a processor unit automatically determining at least one of amplitudes, offsets and a phase difference of the analog feedback signals; and
- a digital display displaying the at least one of the amplitudes, offsets and a phase difference of the analog feedback signals section of the motor controller.

14. (previously presented) A motor controller for performing control of position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, said motor controller comprising:

a converter converting the analog feedback signals into digital feedback signals;

a processor unit automatically performing comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values; and

a digital display displaying at least one of the comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values.

15. (original) An apparatus, comprising:

a motor controller performing control of position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, said motor controller including:

a converter converting the analog feedback signals into digital feedback signals;

a processor unit automatically performing a comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values; and

a digital display displaying the at least one of the comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values,

wherein the processor unit obtains an offset value ΔA according to a formula

$$\Delta A = \frac{A_{MAX} + A_{MIN}}{2C},$$

where A_{MAX} is a maximum amplitude value, A_{MIN} is a minimum amplitude value and C is a predetermined value.

16. (original) An apparatus, comprising:

a motor controller controlling position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, said motor controller including:

a converter converting the analog feedback signals into digital feedback signals;

a detecting circuit performing A/D conversion of the analog feedback signals using amplitude ratio and phase difference compensation parameters,

a processor unit automatically performing comparisons of offsets of the analog feedback signals with respective predetermined values; and

a digital display displaying at least one of the comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values,

wherein the processor unit feeds back a compensated signal based on offsets of the analog feedback signals to control position or velocity of the motor.

17. (original) A method for controlling position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, the method comprising:

converting the analog feedback signals into digital feedback signals;

performing automatically comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values; and

displaying digitally at least one of the comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values,

wherein the comparisons obtain an offset value ΔA according to a formula

$$\Delta A = \frac{A_{MAX} + A_{MIN}}{2C},$$

where A_{MAX} is a maximum amplitude value, A_{MIN} is a minimum amplitude value and C is a predetermined value.

18. (original) A method for controlling position or velocity of a movable member mechanically connected with a motor using analog feedback signals from encoders for detecting rotational position or velocity of the motor, or position or velocity of the movable member, the method comprising:

converting the analog feedback signals into digital feedback signals;

performing A/D conversion of the analog feedback signals using amplitude ratio and phase difference compensation parameters,

performing automatically comparisons of offsets of the analog feedback signals with respective predetermined values;

displaying digitally at least one of the comparisons of amplitudes and/or offsets of the analog feedback signals with respective predetermined values; and

feeding back a compensated signal based on offsets of the analog feedback signals to

control position or velocity of the motor.

19. (currently amended) A motor controller for controlling a movable member mechanically connected to a motor using a plurality of analog feedback signals, comprising:
an encoder configured to detect at least one of a rotational position and a velocity of the motor and to generate the analog feedback signals;

a digital display; and

a display unit configured to automatically perform analog-to-digital conversion and to determine and display information on at least one of amplitudes, offsets and a phase difference of the analog feedback signals on the digital display.

20. (new) A motor controller for controlling a movable member mechanically connected to a motor using a plurality of analog feedback signals, comprising:

an encoder configured to detect at least one of a position and a velocity of the movable member and to generate the analog feedback signals;

a digital display; and

a display unit configured to automatically perform analog-to-digital conversion and to determine and display information on at least one of amplitudes, offsets and a phase difference of the analog feedback signals on the digital display,

wherein the motor controller controls at least one of a position and a velocity of the movable member.